

The cold chain:

A case for improved onion storage facilities and price stability

The price of onions in the local market went up by BDT 10 per kilogram on 14 October 2023. As reported by Dhaka Tribune¹, the price jumped to BDT 45-55/kg for imported and BDT 50-60/kg for local varieties. In response to the rising prices of onions and other food staples, Trade Corporation of Bangladesh (TBC), the government agency that intervenes in the market system to keep the prices of basic commodities within reach of the masses, started selling and distributing onions at a subsidized price to the most vulnerable Bangladeshis.

In Bangladesh perishable fruits and vegetables are especially prone to rapid changes in prices and interruptions in supplies. Farmer-producers are concerned about seasonality of demand and production and often incur significant post-harvest losses (PHL). Food processors are constantly uneasy about stocks and timing of orders. Meanwhile consumers are unsure about what they can afford and for how long. In fact, consumer prices rise because wholesalers and retailers need to recover the cost of high rates of PHL.



The onion market in Bangladesh is a cautionary example of avoidable suffering from price and supply fluctuations that could be ameliorated by investing in cold chain and storage technologies. Bangladesh does not currently have the production capacity to meet domestic demand for onions, and imported produce comes from neighboring states, mainly India to make up the difference.^{2 3 4} Import reliance leads to higher prices, as suppliers incur additional costs for transport and other import-related expenses (e.g. testing fees, import taxes, and Customs duties).⁵ Congestion at Chattogram Port, the country's main seaport, leads to long container holding periods and other bottlenecks which also increase prices of staple imported food products. For the past 10 years, importation of onions, which typically ship via land borders, is also frequently impacted by export controls or outright bans. Thus, India's trade policies contribute to supply and price volatility of onions for Bangladeshi traders and families.

India's Onion Export Controls

2010

Temporary onion export ban⁶

2011

Temporary onion export ban⁷

2013

Minimum export price raised to discourage exports⁸

2015

Minimum export price raised to discourage exports⁹

2019

Temporary onion export ban¹⁰

2020

Temporary onion export ban¹¹

10 Years of interventions by the Indian government in the onion market

¹ Dhaka Tribune, 16 October 2022. <https://www.dhakatribune.com/commerce/2022/10/16/essential-commodities-keep-getting-out-of-reach>

² Fuad, Mubtasim. "Onion import, production both surging." The Business Post. 12 Jan 2022. <https://businesspostbd.com/front/2022-01-12/onion-import-production-both-surging>

³ Bangladesh Bureau of Statistics (BBS) "Yearbook of Agricultural Statistics-2021."

⁴ Mishra, Asit Ranjan "The Bangladesh factor in India's onion export ban" 15 Sep 2020.

⁵ Bhuyan, Mohammed Salim, and Raju, Valliappan. "Supply Chain Management System of Vegetables in Bangladesh" Journal of Emerging Technologies and Innovative Research. December 2018.

⁶ PTI "Govt suspends onion exports due to high prices". Times of India. 20 December 2010.

⁷ ET Bureau. "Onion export ban lifted; \$ 475/T fixed as minimum export price". The Economic Times. 21 September 2011.

⁸ PTI. "Onion price surges to record high of Rs 90/kg; govt may import". The Economic Times. 23 October 2013.

⁹ Iyer, Kavitha. "Export curbs bring tears to Maharashtra's onion growers". The Indian Express. 23 July 2015.

¹⁰ The Daily Star, 29 September 2019. <https://www.thedailystar.net/business/india-bans-onion-exports-in-bangladesh-1806985>

¹¹ Haque, Moinul. "Experts against single-source import". New Age Bangladesh. 28 May 2022. <https://www.newagebd.net/article/171807/experts-against-single-source-import>

To unlock the country’s full economic potential, price stability for perishable goods must be ensured and supply channels should be predictable and consistent. Introducing temperature-controlled logistics (TCL) and proper storage technology and facilities—a cold chain—can help stabilize both factors, protecting investors, food processors, farmer-producers, and consumers alike. A cold chain is essential to modernizing post-harvest handling and to improving the country’s trade balance by substituting imports with local produce and by creating new opportunities for agricultural exports.

The agriculture industry experiences high PHL rates for fruits and vegetables, with the waste and spoilage for onion production estimated to reach 40%. **In 2020, PHL resulted in 782,000 MT of onions never reaching the market, which is valued at close to USD 200 million.**¹² Now consider that Bangladesh imported around USD 170 million worth of onions in 2020.^{13 14} Domestic production and investment in cold chain technologies and systems could have a dramatic positive economic impact valued at nearly USD 370 million that is achieved by reducing PHL, becoming less reliant on import of staple food commodities, smoothing supply throughout the year, and by stabilizing consumer prices.



Improving the cold chain and developing the appropriate cold storage, transport, and logistics services is an investment opportunity to reduce post-harvest losses, increase food safety and quality, and to add value to products through processing. TCL services and facilities are absolutely necessary for Bangladesh to be competitive in export markets for fresh and frozen fruit and vegetables.” – Manuel Cabrera Kabana, Chairman of the International Association of Refrigerated Warehouses, who has been providing expert advice to companies in Bangladesh, emphasized the need for investment.

The graph below illustrates the dynamic of monthly price fluctuations of onion prices in 2018 and 2019. There is consistently a wide price differential for onions between low and high seasons, especially around the harvest season in April and the planting season in November. However, in 2019 Bangladeshis experienced a sharp increase in prices starting in September. The BDT 200/kg price spike alone between January 2019 (BDT 28/kg) to November 2019 (BDT 228/kg) is evidence enough to encourage investment in cold chain logistics and storage facilities. With proper facilities and handling techniques, onions can be stored for a long period of time, accordingly the cost of investment in the cold chain could be covered by avoiding price hikes like in 2019. It’s clear that due to repeated export controls from trading partners and price volatility, Bangladesh’s current approach of using imported onions as the price stabilizer is not fully reliable. With this knowledge in hand, it would be prudent to lessen the need for imports, and the cold chain offers a solution because it enables farmer-producers and food processors to store locally harvested onions in proper conditions and further enhances price stability.

Fluctuations in monthly average wholesale prices of onion in 2018 and 2019 (Taka/Quintal).



Source: Hasan, M.M, Zahara, M. Tuz, Sykot, M. M., Hafiz, R, and Saifuzzaman, M. "Solving Onion Market Instability by Forecasting Onion Price Using Machine Learning Approach," 2020 International Conference on Computational Performance Evaluation (ComPE), 2020.

¹² Faostat, accessed 14 September 2021 <https://www.fao.org/faostat/en/#home>

¹³ Fuad, Mubtasim. "Onion import, production both surging." The Business Post. 12 Jan 2022. <https://businesspostbd.com/front/2022-01-12/onion-import-production-both-surging>

¹⁴ LixCap market study 2021.

“Bangladeshi onion farmers are disgruntled because they must immediately sell their products due to the lack of storage facilities.” - Mohammed Saad El Jai, senior economist at international economic development consultancy firm LixCap.



While there are cold storage facilities and refrigerated transport service providers in Bangladesh, the storage centers are often outdated and fail to maintain hygienic and temperature standards needed to maximize product shelf life and quality. The limited use of temperature-controlled vehicles for the transport and distribution of products, even hardy products like onions, further exacerbates product spoilage. Rectifying the fragmentation and underdevelopment in the temperature-controlled logistics sector through investment in the cold chain can and will have a significant positive effect to reduce PHL and extend the storage and shelf life of many perishable goods. The downstream effects are clear: reducing wastage that was estimated to be nearly USD 200 million for onions in 2020.

Temperature-controlled storage systems for onions is not common in Bangladesh. Approximately 98% of cold storage for fresh produce in Bangladesh is used for potatoes.

Compared to potatoes, TCL for onions require more specific measures and handling techniques that allow the produce to be stored for between 5 and 10 months, as experience shows in other countries.

The Bangladesh Trade Facilitation project aims to expand cross-border trade in agricultural goods and food products. The objective is to address systemic constraints at Bangladeshi ports; simplify and automate import and export processes; improve the capacity of Government regulatory agencies, laboratories, and warehouses; and to foster investment in cold storage facilities and temperature-controlled logistics.

Implementing Organizations



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This material is based upon work supported by the U.S. Department of Agriculture, Foreign Agricultural Service under Food for Progress Program, Federal award No. FCC-388-2020/003-00. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.